

We claim:

1 1. In a data network comprised of a plurality of data switches interconnected to
2 form a plurality of data paths forming a mesh configuration of data switches, a
3 method of re-routing data messages between first and second data switches
4 over a pre-established alternate data path linking said first and second data
5 switches comprised of the steps of:

- 6 a. sending at least a first data message over a first data path from said first
7 switch to said second switch;
8 b. receiving at said first data switch, switch status messages from said
9 second switch;
10 c. upon the loss of said switch status messages at said first switch, re-
11 directing subsequent data messages over an alternate data path through
12 said data network.

1 2. The data network of claim 1 wherein said alternate data path is a protection
2 path through said network.

1 3. The method of claim 1 wherein said data switches are asynchronous transfer
2 mode switches.

1 4. The method of claim 1 wherein said data switches are internet protocol (IP)
2 routers.

1 5. The method of claim 1 wherein said switch status messages are comprised of a
2 predetermined format, switch liveness message.

1 6. The method of claim 1 wherein at least one of said switches maintains a table
2 of incoming link and path identifiers and of outgoing link and path identifiers.

1 7. The method of claim 1 wherein said first data message represents speech
2 information.

1 8. The method of claim 1 wherein said first data messages represents computer
2 data.

1 9. The method of claim 1 wherein said step of re-directing said series of data
2 messages from said first path over another path through said data network
3 includes the steps of:

4 sending subsequent first data messages to a third data switch.

1 10. The method of claim 1 wherein said first data switch is a protection switch
2 element.

1 11. In a data network comprised of a plurality of data switches interconnected to
2 form a plurality of data paths forming a mesh configuration of data switches, a
3 method of re-routing data messages around a data switch comprised of the
4 steps of:

- 5 a. sending at least a first data message over a first data path from a first
6 switch to a second switch;
7 b. sending said at least a first data message from said second switch to a third
8 switch;
9 c. receiving at said second data switch, switch status messages indicating the
10 functionality of said third data switch;
11 d. upon the loss of said switch status messages at said second switch, sending
12 a switch failure message from said second switch to said first switch;
13 e. upon the receipt of said switch failure message at said first switch, said
14 first switch re-directing subsequent data messages away from said second
15 and third switch via a second data path through said data network.

1 12. The data network of claim 11 wherein said second data path is a protection
2 path through said network.

- 1 13. The method of claim 11 wherein said data switches are asynchronous transfer
2 mode switches.
- 1 14. The method of claim 11 wherein said data switches are internet protocol (IP)
2 routers.
- 1 15. The method of claim 11 wherein said data switches are digital cross connect
2 switches controlled by MPLS.
- 1 16. The method of claim 11 wherein said data switches are optical cross connects
2 and switches controlled by MPLS.
- 1 17. The method of claim 11 wherein said switch status messages are comprised of
2 a predetermined format, switch liveness message.
- 1 18. The method of claim 11 wherein at least one of said switches maintains a table
2 of incoming link and path identifiers and of outgoing link and path identifiers.
- 1 19. The method of claim 11 wherein said series of data messages represent speech
2 information.
- 1 20. The method of claim 11 wherein said series of data messages represent
2 computer data.

1 21. The method of claim 11 wherein said step of re-directing said series of data
2 messages from said first path over another path through said data network
3 includes the steps of:
4 sending subsequent data messages to a third data switch.

1 ~~22.~~ In a data network comprised of a plurality of data switches interconnected to
2 form a plurality of data paths forming a mesh configuration of data switches, a
3 method of re-routing data messages between first and second data switches
4 over a pre-established alternate data path linking said first and second data
5 switches comprised of the steps of:
6 a. sending at least a first data message over a first data path from said first
7 switch to said second switch;
8 b. upon the loss of said first data message at said second switch, sending a
9 switch status messages to said first switch, the receipt of said switch status
10 message thereby causing the re-directing of subsequent data messages
11 over an alternate data path through said data network.

1 23. In a data network comprised of a plurality of data switches interconnected to
2 form a plurality of data paths forming a mesh configuration of data switches, a
3 method of re-routing data messages around a data switch comprised of the
4 steps of:

5 a. sending at least a first data message over a first data path from a first
6 switch to a second switch;

7 b. sending said at least a first data message from said second switch to a third
8 switch;

9 upon the loss of said first data message at either said second switch or said
10 third switch, sending a switch status message to at least one of said first and
11 second switches thereby causing the re-directing of subsequent data messages
12 away from said second and third switch via another data path through said
13 data network.

1 24. The method of claim 23 wherein said first switch is a protection switch
2 element.